April 11, 1950.

Dr. Frank Davis,
Microbiology Research Division,
Agricultural Research Center.
Beltsville, Maryland.

Dear Dr, Davis:

Your paper, "The utilization of some organic compounds by one strain each of S. anatum, S. oranienburg, and S. pullorum", J. Bact., 59:361, 1950., has just come to my attention. I have some comments which I would like to bring to your consideration.

On p. 361, Johnson and Rettger are quoted as reporting that S. pullorum requires thiamine in an amino acid medium. I have never found such a requirement of S. pullorum, and I believe that Johnson and Rettger's paper may have been misunderstood. Most pullorum strains will grow on medium supplemented with certain amino acids,depedding on the strain, but usually including cystine, arginine, leucine and histidine. S. gallinarum, on the other hand, requires thiamine, almost consistently, and in fact can do quite well without amino acids [although Johnson and Rettger do not mention the latter]. You may,of course, choose to lump gallinarum with pullorum. although for nutritional and epidemiological purposes they are as distinctive as any Salmonella species.

Elsewhere in your paper, you mention that S. pullorum failed to utilize any of the carbon sources which you tested. In view of the well established nutritional requirements of this type, such a result could only have been anticipated. Since the primary objective of your work seems to have been the determination of the scope of potential energy sources for these Salmonella, it would be of some importance to distinguish clearly between the availability of a carbon compound as an energy source in a synthetic medium on the basis of its metabolic utilizibility,from the question of the specific growth factor requirements of the organism (amino acids, vitamins, etc.) The history of nutrition research both on animals and microorganisms shows clearly that little progress can be made until this distinction is clearly appreciated and presented. In the present instance, the media used for S. pullorum should be supplemented with the specific growth factors required by your strain, before any rational attempt can be made to investigate the range of organic energy sources available to it.

Yours sincerely,

Joshua Lederberg
Assistant Professor of Genetics